

What is claimed is:

1. A light-emitting device, comprising:  
a semiconductor diode die that emits light through at least one face thereof; and  
an encapsulant that at least partially encapsulates the semiconductor diode die,  
the encapsulant including at least a portion adjacent the face that comprises an  
amorphous fluoropolymer.
2. The light-emitting device of claim 1, wherein:  
the portion of the encapsulant adjacent the face is shaped to form at least a  
portion of a lens for directing the light emitted through the face.
3. The light-emitting device of claim 1, wherein:  
the portion of the encapsulant adjacent the face comprises a lens for directing  
the light emitted through the face.
4. The light-emitting device of claim 1, wherein:  
the semiconductor diode die comprises a flip chip grown on a substrate that  
forms the face.
5. The light-emitting device of claim 4, wherein:  
the substrate comprises sapphire.
6. The light-emitting device of claim 1, wherein:  
the encapsulant is injection molded.
7. The light-emitting device of claim 1, further comprising:  
a lens comprising an amorphous fluoropolymer, joined to the encapsulant, for  
directing the light emitted through the face.

8. The light-emitting device of claim 1, wherein:  
the semiconductor diode die comprises a light-emitting diode die.
9. The light-emitting device of claim 1, wherein:  
the semiconductor diode die comprises a laser diode die.
10. The light-emitting device of claim 1, wherein:  
the emitted light comprises ultraviolet light.
11. The light-emitting device of claim 1, wherein:  
the emitted light comprises infrared light.
12. The light-emitting device of claim 1, wherein:  
the portion adjacent the face substantially consists of amorphous fluoropolymer.
13. The light-emitting device of claim 1, wherein:  
the encapsulant substantially consists of amorphous fluoropolymer.
14. A light-emitting device, comprising:  
a semiconductor diode die that emits light through at least one face thereof; and  
an integral encapsulant and lens comprising an amorphous fluoropolymer that  
encapsulates at least the face and directs the light emitted through the face.
15. A light-emitting device, comprising:  
a semiconductor diode die that emits light through at least one face thereof;  
an encapsulant comprising an amorphous fluoropolymer that encapsulates at  
least the face; and  
at least one lens comprising an amorphous fluoropolymer joined to the

encapsulant for directing the light emitted through the face.

16. A method for encapsulating a light-emitting device, comprising:  
providing a semiconductor diode device that emits light through at least one face thereof; and  
at least partially encapsulating the semiconductor diode device using an encapsulant including at least a portion adjacent the face that comprises an amorphous fluoropolymer.
17. The method of claim 16, wherein:  
the encapsulating comprises injection molding the amorphous fluoropolymer.
18. The method of claim 16, wherein:  
the semiconductor diode device comprises one of a die and a microarray.
19. A method for coating a light-emitting device, comprising:  
providing at least one semiconductor diode device that emits light through at least one face thereof; and  
at least partially coating the at least one semiconductor diode device including at least a portion adjacent the face using a coating that comprises an amorphous fluoropolymer.
20. The method of claim 19, wherein:  
the at least one semiconductor diode device comprises one of a die and a microarray.